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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,214	07/28/2003	Steven B. Lonnes	2001.079	5456
7590 J. Paul Plummer ExxonMobil Upstream Research Company P. O. Box 2189 Houston, TX 77252-2189			EXAMINER BOMAR, THOMAS S	
			ART UNIT 3672	PAPER NUMBER
			MAIL DATE 05/15/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/628,214	<b>Applicant(s)</b> LONNES ET AL.	
	<b>Examiner</b> Shane Bomar	<b>Art Unit</b> 3672	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 February 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                 | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 4, 5, 8-10, 13, 14, 17, 19, 21-23, and 26 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6,536,530 to Schultz et al.

Regarding claims 1, 5, 17, and 19, Schultz et al disclose a system comprising two or more valves 54 and 56 wherein said valves operate over a designated pressure interval (col. 4, line 28 through col. 5, line 15) and are arranged to independently actuate performance of a sequenced set of events (i.e., regulating the flow rate for each zone; col. 3, lines 60-64) by one or more downhole tools 20 based on the application of fluid pressure to said valves (Figs. 1-4 and col. 7, lines 15-37), wherein the two valves 54 and 56 are within one sub-assembly 48 that communicates with another sub-assembly 50 through fluid lines, which are pressure isolating connections (Fig. 2).

Regarding claim 4, shuttles 66 and 68 in valves 54 and 56 have annuluses and are therefore annular-based valves (Fig. 2).

Regarding claims 8 and 21, valves 58 and 60 only allow flow in one direction (Fig. 2).

Regarding claim 9, 10, 22, and 23, at least one of the valves causes flow to cease and one of the valves allows flow therethrough based upon predefined pressure and rate on the valve (i.e., the upper and lower limits; col. 4, lines 45-64).

Regarding claims 13, 14, and 26, orifices in valve 70 (orifices located where lines leave the valve) limit the flow to the actuator, and therefore the rest of the system (col. 5, lines 16-31).

### ***Claim Rejections - 35 USC § 103***

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 2, 3, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shultz et al.

Shultz et al teach the valves of claims 1 and 17, but do not necessarily teach that the valves are cartridge valves. However, the Applicant defines a cartridge valve as one that is attached to a pressure source (such as the hydraulic pressure line in Fig. 2 of Shultz et al), and that a single purpose cartridge valve is a relief valve (such as the relief valves 58 and 60 in Fig. 2

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of Shultz et al). Therefore, at the time the invention was made, it would have been obvious to one of ordinary skill in the art that at least some of the valves taught by Shultz et al meet the definition of the currently claimed valve types.

6. Claims 6, 7, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shultz et al in view of US 6,619,392 to Marangoni et al.

Shultz et al teach the system and apparatus of claims 1 and 17, respectively, wherein pressure relief valves 58 and 60 are used to hydraulically operate valves 20 (i.e., interval control valves; col. 3, lines 56-60). However, it is not expressly taught that the valves 20 are electrical devices that can communicate with a command base with or without a wireline.

Marangoni et al teach an interval control valve similar to that of Shultz et al, wherein it is further taught that the valve can be remotely operated by a hydraulic and/or an electric line (the electric line herein considered a wireline; col. 1, lines 50-54). It would have been obvious to one of ordinary skill in the art, having the teachings of Shultz et al and Marangoni et al before him at the time the invention was made, to modify the interval control valve taught by Shultz et al to include the additional electric line control of Marangoni et al. One would have been motivated to make such a combination because the additional electric line provides operational redundancy which will be advantageous in a situation where the hydraulic line fails to operate or is otherwise malfunctioning, which is notoriously known in the art to occur to downhole components due to the extreme conditions encountered. Furthermore, since both a wireline configuration and a configuration without a wireline are claimed by the Applicant, this is not considered to be a critical aspect of the Applicants invention, although it is notoriously known to those of skill in the art that wireline and non-wireline communications are obvious variants of one another and

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the combination clearly teaches non-wireline communication, with wireline communication being obvious to one of ordinary skill in the art.

7. Claims 11 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shultz et al in view of US 4,266,606 to Stone.

Shultz et al teach the system and apparatus of claims 1 and 17, respectively, wherein the valves accept fluids during the application of fluid pressure. However, it is not specifically taught that there is a filter in the hydraulic lines that provide such fluids.

Stone teaches a downhole valve operated by a hydraulic line similar to that of Shultz et al. It is further taught that the hydraulic line has a screen for filtering solids from the hydraulic fluid before it enters the valve (Fig. 4; col. 1, lines 42-58). It would have been obvious to one of ordinary skill in the art, having the teachings of Shultz et al and Stone before him at the time the invention was made, to modify the hydraulic lines taught by Shultz et al to include the filter of Stone. One would have been motivated to make such a combination so that the presence of mud or other harmful impurities will be minimized in the hydraulic circuit, thereby protecting the valves from such impurities (col. 1, lines 62-66; col. 4, lines 25-32 of Stone).

8. Claims 12 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shultz et al in view of US 6,293,346 to Patel.

Shultz et al teach the system and apparatus of claims 1 and 17, respectively, wherein pressure relief valves 58 and 60 are used and overcome at predefined conditions, although it is not specifically taught that the system or apparatus further comprises a burst disk to allow flow out of the one or more tools under predefined conditions.

Patel teaches a system and apparatus that includes a pressure relief valve that operates similarly to that of Shultz et al (Fig. 3A and col. 4, lines 15-19). It is further taught that a burst disk 146 is also included in the system (Fig. 3A). It would have been obvious to one of ordinary skill in the art, having the teachings of Shultz et al and Patel before him at the time the invention was made, to modify the system and apparatus taught by Shultz et al to include the burst disk of Patel. One would have been motivated to make such a combination so that pressure can still be relieved from the system when the relief valve fails, therefore protecting the components from failure due to over-pressurization (col. 4, lines 25-31 of Patel).

9. Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,704,426 to Rytlewski et al in view of Schultz et al.

Regarding claim 15, Rytlewski et al teach a method for perforating and treating multiple intervals of one or more subterranean formations intersected by a wellbore, said method comprising the steps of: (a) deploying a bottom-hole assembly ("BHA") from a tubing string within said wellbore, said BHA having a perforating device 152, 154, or 156, and a sealing mechanism 158; (b) using said perforating device to perforate at least one interval of said one or more subterranean formations; (c) positioning said BHA within said wellbore and activating said sealing mechanism so as to establish a hydraulic seal below said at least one perforated interval; (d) pumping a treating fluid down the annulus between said tubing string and said wellbore and into the perforations created by said perforating device (see col. 1, lines 6-16), without removing said perforating device from said wellbore; (e) releasing said sealing mechanism; and (f) repeating steps (b) through (e) for at least one additional interval of said one or more subterranean formations (see Figs. 14a-14d and col. 11, line 34 through col. 12, line 25). It is not

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expressly taught that at least one of said steps is actuated by a system of two or more valves that operate over a designated pressure interval and is each arranged to independently actuate performance of said step with the application of pressure to said valves.

Shultz et al teach a method for setting packers above and below multiple perforated zones similar to that of Rytlewski et al (see Fig. 1). It is further taught that the system comprises two or more valves 54 and 56 that operate over a designated pressure interval and each is arranged to independently actuate performance of said step with the application of pressure to said valves (col. 4, line 28 through col. 5, line 15; col. 7, lines 15-37). It would have been obvious to one of ordinary skill in the art, having the teachings of Rytlewski et al and Shultz et al before him at the time the invention was made, to modify the method taught by Rytlewski et al to include the valve system of Shultz et al. One would have been motivated to make such a combination because the system would allow optimal flow rate for each zone to be independently established (see col. 3, lines 56-64 of Shultz et al).

Regarding claim 16, the combination applied to claim 15 above teaches that additional steps are performed including equalizing pressure across said sealing mechanism (see claim 19 of Shultz et al).

### ***Response to Arguments***

10. Applicant's arguments, see pages 6-14, filed February 13, 2007, with respect to the rejection(s) of claim(s) 1, 15, and 17 under 35 USC 102(b) and 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Shultz et al as the primary reference.



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*Conclusion*

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shane Bomar whose telephone number is 571-272-7026. The examiner can normally be reached on Monday - Thursday from 6:00am to 2:30pm. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bagnell can be reached on 571-272-6999. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Shane Bomar  
Supervisory Patent Examiner  
Art Unit 3672

May 9, 2007